



# **NAVAL POSTGRADUATE SCHOOL**

**MONTEREY, CALIFORNIA**

## **THESIS**

**AN ANALYSIS OF SIZE AND STRUCTURE OF THE  
ARMY OF REUNIFIED KOREA**

by

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March 2010

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**AN ANALYSIS OF SIZE AND STRUCTURE  
OF THE ARMY OF REUNIFIED KOREA**

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Submitted in partial fulfillment of the  
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## **ABSTRACT**

The purpose of this study is to estimate a reasonable size and an appropriate structure for the Army of Reunified Korea (the Korean Federal Army, KFA). In addition, this study discusses methods of integrating Korean People's Army (KPA) personnel of the People's Democratic Republic of Korea (PDRK), now commonly referred to as "North Korea," into the KFA. To do this, this study starts with a planning threat from the People's Republic of China (PRC), estimates the combat potential of that threat, and then estimates the KFA forces needed to provide a robust defense against that threat. In addition, this study analyzes the appropriate composition of the KFA, using Germany's military integration as a reference case.

The proposed KFA components are High-Intensity Combat Units (HICUs), Homeland Defense Units (HDUs), and an Expeditionary Unit. The HICUs consist of two mechanized corps and one armored corps each, with forces that include nine heavy divisions, three armored divisions, and three artillery brigades per HICU. The HDUs consist of 18 homeland defense infantry divisions and one capital defense command, which have two homeland defense infantry divisions for a total of 20 homeland defense infantry divisions. The Expeditionary Unit consists of one brigade. The proposed personnel strength of KFA is approximately 350,000, which is about two-thirds the size of the current Republic of Korea Army (ROKA). North Korean military personnel could be utilized in the KFA through transforming and downsizing KPA combat units. To minimize dissatisfaction of discharged KPA professional soldiers, Reunified Korea should provide them with alternative job prospects by using them for reconstruction of the North Korean region, hiring them into military-related jobs, or providing training for other forms of employment.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

BDE	Brigade
Div	Division
DPRK	Democratic People's Republic of Korea
GDP	Gross Domestic Product
GDR	German Democratic Republic
KFA	Korea Federal Army
KPA	Korean People's Army (North Korea)
NVA	National People's Army ("National Volksarmee" in German)
PRC	People's Republic of China
PLA	People's Liberation Army (China)
ROK	Republic of Korea
ROKA	Republic of Korea Army
RDU	Rapid Deployment Unit
RRU	Rapid Reaction Unit
TASCFORM	Technique for Assessing Comparative Forces Modernization

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During my seven quarters at the Naval Postgraduate School, I frequently fielded questions as to whether the Republic of Korea really wants reunification. I believe the people living in the Democratic People's Republic of Korea are still our brothers and should be reunified with us someday. I always pray that my studies and experiences at the Naval Postgraduate School can be used in the eventual reunification of Korea. I do not think my study provides the complete solution to this issue, but I hope my thesis will be a useful reference to others who may be involved in the reunification process.

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# **I. INTRODUCTION**

## **A. BACKGROUND**

Korea is a peninsula located in East Asia and has five thousand years of history. Geographical characteristics of the peninsula made Korea a sort of bridge that absorbed advanced knowledge and culture from China and passed it down to Japan. Also, Korea became a center of trading between China and Japan. However, when Korea had not sufficient power to defend itself, it was invaded by the neighboring powerful countries. In 1230, Korea was forced to accompany Mongolia to attack Japan. In 1590, Japan invaded Korea as a preliminary step to attacking China. The Manchu War of 1636 also made Korea maintain a feuding relationship with the Manchu Dynasty, just as Korea did with the Ming Dynasty. In 1900, Korea lost its independence to Japan and suffered from an exploitative colonial policy. After World War II, Korea was divided into the Republic of Korea (ROK) and the Democratic People's Republic of Korea (DPRK) by other countries.

In the late 20th century, ROK overcame the difficulties of the Korean War and became the 13th most economically advanced country (CIA, 2009) and even dispatched troops as a member of United Nations (UN) Peacekeeping Forces to help countries in emergencies. However, because of DPRK's threat, ROK is not completely free from the possibility of war and has to maintain a large number of military forces relative to its population (1.4%). The ROK employs a conscription system, as well, which also results in large opportunities lost due to reduced labor force, and restrains ROK from growing to be a major economic power in Asia. Therefore, reunification is likely to result in Korea becoming a major country among the world powers. Moreover, reunification is necessary for advancing peace and stability in East Asia and cooperation among these countries. According to Chosun Ilbo:

U.S. investment bank Goldman Sachs speculated...that a Unified Korea could overtake G7 countries like France, Germany and Japan in economic strength...Goldman Sachs projected that, given North Korea's potential, a

unified Korea will in 30–40 years be on a par with or overtake G7 countries except the U.S. in dollar GDP [gross domestic product]. (Choi, 2009)

Although there will be a large expenditure to reconstruct North Korea, their analysis predicts a synergistic effect due to plenty of natural resources and labor force in North Korea combining with the technology and capital in South Korea. Furthermore, if Unified Korea takes advantage of geography, like construction of a railroad to the Eurasia region, Korea could be one of the primary economies for the distribution of goods in Asia. By unifying, Korea can also reduce defense spending and invest in economic growth. Moreover, by reducing the conscription period, Korea can accelerate productivity by further increasing its labor force.

Due to these potential benefits, ROK has made several efforts to begin the process of reunification, with food assistance, exchange visits of separated families, and the first Inter-Korean summit meeting since the end of the Cold War. However, reunification without preparation will exacerbate economic and political problems, such as high unemployment and active opposition by the North's military personnel. Germany, which was in a situation very similar to that faced by Korea, had a difficult time due to economic problems and social conflicts with previous East Germans after reunification. Hankyung, a daily ROK economic newspaper, says that, at first, West Germany expected reunification to cost US\$50 billion and planned to raise these funds through increasing taxes. However, the estimated cost of reunification soared up to US\$500 billion by the end of 1991, and Germany is still spending 100 billion euros per year, which is equal to 4% of GDP, to support the eastern German region (Yang, 2010). This modernization and integration of the eastern German economy is scheduled to continue until the year 2019, with transfers of approximately US\$80 billion per year to eastern Germany (Wikipedia). This unexpected increased cost of reunification caused higher taxes, worsened budget deficits, and created high interest and unemployment rates.

However, unlike the German Democratic Republic (GDR), DPRK maintains its own large military establishment, which most believe is larger than ROK's. The DPRK military also has substantial political power. In addition to economic issues, the East

German people felt they were treated unequally to West German people and East German military officers were discontented with pension reductions, demotions, and discharges (Moon, 2005). According to William Lewis, founding director of the McKinsey Global Institute, ROK's reunification will entail higher costs than Germany's. He said:

GDP per capita is only 5 percent of that of the ROK<sup>1</sup>, yet its population is about half. The corresponding ratios for East Germany were 50 percent of West Germany's GDP per capita and only 25 percent of the population. The difficulties of German reunification look like a piece of cake next to the difficulties of Korean unification." (William, 2004, p. 131)

Therefore, Hankyung said on 14 January 2010 that experts estimate the cost of Korean unification will be nine times that of Germany's and Peter Beck, a researcher at the Asia and Pacific Center of Stanford University, said Korea will spend at least US\$2000 billion in total in unification, which means Korea has to spend 12% of its current GDP on North Korea for ten years. (Yang, 2010) In addition, DPRK's people are isolated from other societies, unlike the East German people in the 1980s. Although 15 years has been passed since German reunification, Germany still has reunification-caused problems because West Germany had to take responsibility for East Germany. Like the German case, some experts warn that ROK would be bankrupt if Korea goes through with reunification without taking sufficient time to efficiently complete the process. A flood of refugees from DPRK could also become a major problem socially and economically to both ROK and China (Wikipedia).

Therefore, to minimize reunification-caused problems, ROK has to prepare the reunification across many areas of effort. The Republic of Korea Army (ROKA) also has to participate in the government's reunification efforts. First, ROKA needs to know a reasonable size at which to maintain the federal army after reunification because maintaining a reasonable force structure deters threatening neighbor countries while

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<sup>1</sup> There is significant uncertainty associated with the size of the DPRK economy, with estimates ranging from \$5B to \$30B, where the latter estimate is made using Purchasing Power Parity methods. A complete analysis of the size of the DPRK economy and defense activity, measured in dollars, awaits further analysis.

minimizing costs and also dissolving of the Korean People's Army (KPA) of DPRK. In the meantime, ROKA needs to prepare for how to absorb the KPA and utilize it until the reunification process will be settled.

## **B. PURPOSE OF STUDY AND RESEARCH QUESTIONS**

The purpose of this study is to tentatively estimate a reasonable size of the potential future Korean Federal Army (KFA) and determine what this army should do to support reunification. Although the methods are dependent on the reunification scenario (peaceful reunification under an agreement between ROK and DPRK, absorbing reunification caused by DPRK collapse, or reunification through war), this study analyzes ROKA's mission in supporting reunification by answering the questions below under the hypothesis that Korea will be reunified without war.

- Primary Questions:
  1. What national security challenges are expected after reunification?
  2. How would ROKA best support Korean reunification objectives?
- Secondary Questions:
  1. What factors should be considered in estimating the size of the KFA after reunification?
  2. What are the significant similarities and differences in the reunification of Korea compared to Germany from a military perspective?

## **C. SCOPE AND ORGANIZATION OF STUDY**

This study will estimate the reasonable size of KFA to deal with external threats and investigate how to absorb DPRK. More specifically, this study will analyze a specified external threat and build KFA to be prepared for this challenge. Then this study reviews the German military reunification case and applies it to ROKA to support the reunification process.

Chapter II discusses why the People's Republic of China (PRC) is a potential threat to a unified Korea and analyzes PRC's People's Liberation Army (PLA) so that

Korea can build an army which can address this national threat. Then this study estimates the PLA and the People's Liberation Army Air Force (PLAAF) deployable to a Korean campaign should war break out between Korea and PRC. Chapter III applies the Technique for Assessing Comparative Forces Modernization (TASCFORM) score to quantify PRC's combat capability. Then this study also quantifies the ROKA and Korean Air Force combat capability using TASC scores. Chapter IV studies the case of Germany's military reunification and compares it to Korea's case. Chapter V builds a reunified Korean army model which is suitable to support ROK's goals and analyzes how to integrate DPRK military assets. Chapter VI discusses conclusions and recommendations based on the limitations of this study.

#### **D. METHODOLOGY**

This study combines quantitative and qualitative analysis. For quantitative analysis, this study uses military information from the International Institute For Strategic Studies, Global Security, Jane's Information Group's study, RAND's study, an anonymous Web site ([http://cafe.naver.com/biofund.cafe?iframe\\_url](http://cafe.naver.com/biofund.cafe?iframe_url)), Mako's study, and other books. To quantify combat capability, this study uses the TASCFORM scoring method. For qualitative analysis, this study performs comparative case analyses using the German military integration as a reference. Then this study analyzes modeling the KFA, and how the process of moving to this combined army will be carried out.

The methodologies used in this study consisted of the following steps:

- Review *The Military Balance 2009* and RAND's study of PLA
- Estimate deployable forces of PLA
- Review the TASC methodology
- Calculate the TASC scores of PLA and ROK
- Review the studies on German reunification
- Compare German and Korean reunification
- Review the army's mission from Korea Defense Paper 2006
- Discuss the possible ways to absorb KPA and support reconstruction of the North Korean region.

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## **II. NATIONAL SECURITY AND ANALYSIS OF PEOPLE'S REPUBLIC OF CHINA (PRC) THREAT AFTER REUNIFICATION**

### **A. POTENTIAL THREATS TO REUNIFIED KOREA**

So far, the ROK has focused on the DPRK as the main potential enemy, with other countries attracting little attention as potential threats. Therefore, analysis of military threats to a reunified Korea is still in its early stages. However, to size the KFA with enough capability, to structure the army efficiently, and to set an operational strategy for the army, it is worth of postulating a potential threat and assessing its implications. This study follows Kim's methodology, which considers political, economic, socio-cultural, geographical, and military factors in quantifying the potential threat to Reunified Korea (Kim et al., 1993). Although it is impossible to precisely specify military threats and to predict how they will evolve, this study concludes that PRC will be the most threatening country to a reunified Korea based on political, economical, socio-cultural, geographical, and military factors.

In the political dimension, PRC and Japan's economies have grown rapidly in recent decades while U.S. influence over Asia has declined. China, which was Asia's leading power before being defeated in the Opium War by Britain in 1842, might well try to increase its influence in East Asia. In the economic dimension, even though ROK has not had any armed conflict with other countries so far, we should not ignore possible conflicts as trade increases. Conflicts over access to resources, the pressure of opening markets, and strains in trading relations can be expected. In particular, PRC has been largest destination for ROK exports and the second largest source of ROK imports since 2003. Although this relationship can improve the friendship between PRC and ROK, trade frictions such as smuggling, illegal emigration from PRC to a reunified Korea, infringement of patents, and industrial espionage can worsen the overall relationship.

In the socio-cultural dimension, religious conflict, drugs, human rights issues and terror could result in conflict. PRC cannot be ignored because it still maintains communism and has had a close relationship with DPRK since the Korean War.



Moreover, to solve their inward problems, such as the independence movement in Tibet, environmental pollution, crimes, and drugs, PRC may start a conflict with a reunified Korea.

In the geographical factor, because of close proximity and natural resources, PRC can be the foremost land-based threat capable of threatening Korea. Not only does Korea have problems involving unsettled Gando (East and West),<sup>2</sup> (Figure 1) which is half part of Shenyang (also known as Jiandao or Yanbian), and a continental shelf in the Yellow Sea expected to harbor oil, natural gas, and other natural resources, but PRC also tries to justify ruling DPRK by using a distorted view of history in which it is falsely claimed that Korea belonged to China in the past.<sup>3</sup> PRC's approach to this claim could cause conflict where both nations' ambitions collide over the remains of DPRK.

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<sup>2</sup> The territorial claims stem from the territories held by Goguryeo and Balhae, ancient states in Manchuria from which Koreans claim heritage. In 1712, the Joseon of Korea and Qing of China agreed to delineate the boundaries of the two countries at the Yalu (Amrok) and Tumen Rivers. However, the interpretation of the Tumen River boundary causes problems. The name of the river itself originates from the Jurchen word *tumen*, meaning "ten thousand." The official boundary agreement in 1712 identified the Tumen River using the characters 土門 (pinyin:tūmen) for the phonetic transcription. However, the modern Tumen River is written as 圖們 (pinyin:túmen) in modern Chinese and as 豆滿 (두만) "Duman" in both modern Korean and Japanese. Some Koreans hence claim that the "Tumen" referred to in the treaty is actually a tributary of the Songhua River. Under this interpretation, Gando (where the Koreans settled) would be part of Korean territory. Joseon and Qing officials met in 1885 and 1887 to resolve the dispute, but with little result. From 1905 onwards, Korea came under the influence and control of Japan and was unable to effectively pursue these claims.

After the liberation of Korea in 1945, many Koreans believed that Gando should be given over to Korean rule, but the military control by the U.S. in the south and the Soviet Union in the north hindered any unified Korean claim to the territory. In 1962, North Korea signed a boundary treaty with PRC setting the Korean boundary at the Yalu and the Tumen, effectively foregoing territorial claims to Gando. In 2004, the South Korean government issued a statement to the effect that it believed that the Gando Convention was null and void. The resultant controversy and strong negative reaction from PRC led to a retraction of the statement, along with an explanation that its issuance was an "administrative error."

A small number of South Korean activists believe that under a reunified Korea, the treaties signed by North Korea can be deemed null, allowing the reunified Korea to actively seek redress for Gando. Also, some scholars claims that China's efforts to incorporate the history of Goguryeo and Balhae into Chinese history is effectively a pre-emptive move to quash any territorial disputes that might rise regarding Gando before a reunified Korea could claim such or the Korean ethnic minority in the Manchuria region could claim to become part of Korea (Wikipedia, Jiandao).

<sup>3</sup> The Chinese Academy of Social Sciences started its Northeast Project in June 2001 and obtained government permission in February 2010. The main point of project is to document that the northeast region of Asia, especially Koguryo and Balhae, which were regarded one of kingdoms of Korea, was actually part of China and not Korea. The aim of this project is to support China historically when China tries to exercise dominion over the North Korea region after a DPRK collapse.



Figure 1. Map of Gando (From Do, 2009)

In the military dimension, PRC has increased its defense budget rapidly and the resulting military capabilities will threaten a reunified Korea (and other states which border PRC).

## **B. ANALYSIS OF PEOPLE’S LIBERATION ARMY (PLA)**

### **1. PLA Strategy**

According to the ROK Defense White Paper, PRC military strategy is “to win local wars under conditions of advanced technology” and to “pursue information and mechanization,” (Defense White Paper, 2006, p. 12). Based on rapid Chinese economic growth, the PLA will try to restructure its force and modernize with high-technology weapons to strengthen total war-making capabilities.

In particular, PLA is transforming its structure toward transregional mobility (and power projection), and away from the previous regional defense focus. Based on this strategy, PLA was reduced by 200,000 troops, to 1.6 million, and transitioned from divisions (Divs) to brigades (BDEs) as the primary maneuver units.

Although PRC announced a defense expenditure of US\$35.1 billion at the National People's Congress in 2006, the U.S. Defense Department reported that it would be between US\$70 billion and US\$105 billion if research and development, weapon procurement, and military business profits are included (Defense White Paper, 2006, p.13).

## 2. General Structure

According to a RAND study, PLA has seven Military Regions (MRs), which include a total of 28 Provincial Military Districts (MDs). PLA has 18 Group Armies (GAs), with each GA consisting of three infantry Divs; a tank Div or BDE; an artillery Div or BDE; an antiaircraft artillery (AAA) Div or BDE; a communications regiment; an engineer regiment; a reconnaissance battalion; possibly a pontoon bridge regiment and/or an anti-chemical regiment; other combat service support units, such as transportation and medical units; and; in a few cases, a helicopter unit (called a group) (Blasko, 2002). Depending on their location and mission, there is some variation in the GAs' orders of battle and usually two or three GAs belong to each MR, with the deployment and mission described in Table 1.

Table 1. PLA Ground Forces Organization (From Mulvenon & Yang, 2002)

MR	Mission	Deployment
Beijing	Protect Beijing from Russian Attack	24/65 GA 38 Mechanized GA
Chengdu	Guard the border from Burma and Vietnam	13/14 GA
Guangzhou	Guard the Taiwan coastal frontier	41/42 GA
Jinan	Strategic reserve	20/26/54 GA
Lanzhou	Fight a Russian attack	21/47 GA
Nanjing	Guard the Taiwan coastal frontier	1/12/31 GA
Shenyang	Protect Manchuria from Russian attack	16/40 39 Mechanized GA

In addition, PLA has reserve forces estimated at 0.8 million in 30 Divs, 3 artillery Divs, 12 air defense Divs and 7 logistic support BDEs. Moreover, according to *The Military Balance 2009*, there are 10 million (estimated) militia forces. (International Institute For Strategic Studies, 2009) Also, Lee says that PLA has Rapid Reaction Units (RRUs) and Rapid Deployment Units (RDUs) ready to respond to unexpected threats or insurgencies. The RRUs are equipped with heavy weapons and can deploy by railroad. The RRUs' missions are suppression of riots and antiterrorism; the RDUs' missions involve rebellions and local wars. These specially organized forces also have the capability to attack opposing combat forces before they reach PRC's border (Lee, 2005). See Table 2.

Table 2. Deployment of RRUs and RDUs (From (Ko, 1995))

	Structure	Response Time	Transportation	Air Capability	Equipment	Deployment
<b>R R U</b>	15 <sup>th</sup> Airborne Corps (43/44/45 Div) <sup>4</sup>	7–10 hrs	IL-76/96 Y-8/Y-7	1 regiment	Guns, light tanks, jeeps, anti-air rocket	Jinan MR
	162 Div	1–4 days	Air, Railroad	1 battalion	Armored vehicles, self-propelled guns	Jinan MR (54 GA)
	149 Div	1–4 days	Air, Railroad			Chengdu MR
<b>R D U</b>	38 GA	2–7 days	Railroad		Tanks, tow tanks	Beijing MR
	39 GA	2–7 days	Railroad			Shenyang MR

<sup>4</sup> Part of the PLA Air Force.

### C. COMPARISION BETWEEN PLA AND ROK FORCES

As can be seen from Tables 3 and 4, the gap between the defense budgets of PRC and ROK has become much bigger and this trend is likely to continue with PRC's current military strategy.

Table 3. Comparing Defense Budget of PRC and ROK (From (IISS, 2005))

(All figures in US\$)	<b>2007 GDP</b>	<b>2007 Defense Budget</b>	<b>2008 GDP</b>	<b>2008 Defense Budget</b>
<b>PRC</b>	3.24 trillion	46.1 billion	4.2 trillion	61.1 billion
<b>ROK</b>	970 billion	26.5 billion	710 billion	28.6 billion

Table 4. PRC-ROK Military Balance in Static Terms (From IISS, 2009)

<b>CATEGORY</b>	<b>PRC</b>	<b>ROK</b>
<b>NATIONAL (2008)</b>		
Population	1,330M	49M
GDP	\$4,220B	\$710B
Defense Budget	\$61.1B	\$28.6B
<b>ARMED FORCES PERSONNEL</b>		
Active	2,185K	687K
Reserves	800K (a)	4,500K(b)
<b>LAND FORCES</b>		
Available Active Forces	48 Divs (c)	22 Divs (d )
<b>NAVAL FORCES</b>		
Destroyers	28	10
Frigates	59	9
Corvettes	0	28
Submarines	62	12
Mine Warfare	69 (e)	10 (f)
Amphibious	244 (g)	12 (h)

CATEGORY	PRC	ROK
Fleet replen & support	204	24
<b>AIRCRAFT (NAVY)</b>		
Bombers (H-6/H-5)	25 / 10	0
Attack (J-11/JH-7/Q-5)	24/50/30	0
Transports (An-26/Y-8/Y-7/Y-7/YAK-42)	6/4/4/50/2	0
Recce / AEW	7/1	0
<b>AIR FORCES</b>		
Bombers	100	0
Fighter	600	430
Attack	1800	
Transports	560	43
Tankers	14	0
Recce	200	103
<b>THEATER MISSILES</b>		
IRBM	130-150	0
SRBM	335	0

NOTES:

- (a) Plus a large number of paramilitary forces (~0.7 million).
- (b) Plus a large number of paramilitary forces (~3.5 million).
- (c) Plus 37 BDEs, 3 airborne Divs (Air Force) and 3 marine BDEs.
- (d) Plus 7 special forces BDEs, 1 air assault BDE, 3 counter infiltration BDEs, 2 independent BDEs, 2 marine Divs and 1 marine BDE
- (e) Includes one minelayer.
- (f) Includes one minelayer.
- (g) Includes one LSD
- (h) Includes one LSD

#### D. A PRC-BASED PLANNING THREAT TO REUNIFIED KOREA

Although PLA has strength in quantity, most of its units are still equipped with light and old-fashioned weapons because PRC puts more emphasis on modernizing the Navy and Air-Force. However, PLA's size could threaten a reunified Korea, which faces PRC along a 1,360-kilometer (km) border, including 790 km along the Amnok River and 521 km along the Tumen River.<sup>5</sup>

Actually, the border between PRC and North Korea is not ideal for a PLA invasion because of mountains and the Amnok and Tumen Rivers. However, this study assumes that PRC will push ahead with an invasion to accomplish PRC's objectives. See Figure 2.



Figure 2. Map of Border Between PRC and DPRK (From Google Maps)

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<sup>5</sup> The Sino-Korea Friendship Bridge, which crosses the Amnok River and the Tumen Bridge connecting the PRC and DPRK. The Sino-Korea Friendship Bridge (946 meters) crosses the Amnok River and connects the cities of Dandong, China and Sinŭiju, North Korea (Wikipedia, Sino-Korea Friendship Bridge, 2010). The Tumen Bridge crosses the Tumen River and connects the cities of Tureen, China and Onsung, North Korea.

Because PRC has to consider the threats from other countries (Taiwan, Russia, Vietnam, India, and Burma), its available forces against Korea will likely be three GAs in Shenyang, which borders the Korean Peninsula; three GAs in Jinan (PLA strategic reserve); one GA in Beijing (RDU); and one Div in Chengdu (RRU). It could be seven GAs (including one mechanized GA), one airborne corps, and one Div. Based on Jane's Information Group's information (Table 5), these GAs include five armored Divs, five mechanized infantry Divs, one light mechanized infantry Div, four motorized infantry Divs, two armored BDEs, two mechanized infantry BDEs, eleven motorized infantry BDEs, one army aviation group, three army aviation regiments, seven artillery BDEs, and six mechanized air defense BDEs.

According to the *Directory of PRC Military Personalities*, an army aviation group consists of helicopter units which are subordinated to its group army (Blasko, 2002, p. 323). Therefore, this study treats army aviation groups the same as army aviation regiments. In addition, to make estimation easier, this study considers an infantry Div to have the same firepower as a motorized infantry BDE. Although the airborne corps could be deployed to the Korea Campaign as an RDU, this study did not count it when quantifying the planning threat because the airborne corps will more likely be utilized for irregular warfare.

Table 5. Order of Battle of Deployable PLA Ground Forces to the Korea Campaign  
(From Jane's Information Group, 2009)

MR	Unit	Subordinate Unit
Beijing	38th Group Army*	6th Armored Div
		112th Mechanized Infantry Div
		113th Mechanized Infantry Div
		114th Motorized Infantry Div
		8th Army Aviation Group (Helicopter)
		6th Artillery BDE
		U/I Mechanized Air Defense BDE



<b>MR</b>	<b>Unit</b>	<b>Subordinate Unit</b>
Shenyang	16th Group Army	U/I Motorized Infantry BDE
		4th Armored Div
		46th Motorized Infantry Div
		68th Motorized Infantry BDE
		69th Motorized Infantry Div
		Artillery BDE
		AAA BDE
	39th Mechanized Group Army*	3rd Armored Div
		115th Mechanized Infantry Div
		116th Mechanized Infantry Div
		190th Mechanized Infantry BDE
		9 <sup>th</sup> Army Aviation Regiment
		Artillery BDE
		Air Defense BDE (SAM/AAA)
	40th Group Army	118 <sup>th</sup> Motorized Infantry BDE
		119 <sup>th</sup> Motorized Infantry BDE
		120 <sup>th</sup> Motorized Infantry BDE
		8 <sup>th</sup> Armored BDE
		11 <sup>th</sup> Artillery BDE
		AAA BDE
Jinan	20th Group Army	11 <sup>th</sup> Armored BDE
		58 <sup>th</sup> Mechanized Infantry BDE
		60th Motorized Infantry BDE
		Artillery BDE
		AAA BDE

<b>MR</b>	<b>Unit</b>	<b>Subordinate Unit</b>
	26th Group Army	8th Armored Div
		U/I Motorized Infantry BDE
		138th Motorized Infantry BDE
		U/I Motorized Infantry BDE
		U/I Motorized Infantry BDE
		8 <sup>th</sup> Artillery BDE
		54th Air Defense BDE (SAM/AAA)
		Army Aviation Regiment
	54th Group Army	11th Armored Div
		127th Light Mechanized Infantry Div <sup>1</sup>
		Motorized Infantry BDE
		162nd Motorized Infantry Div**
		1 <sup>st</sup> Army Aviation Regiment
		Artillery BDE
		Air Defense BDE (SAM/AAA)
Chengdu	13 <sup>th</sup> Group Army	149 Mechanized Infantry Div**
Air Force	15 <sup>th</sup> Airborne Corps**	43 <sup>rd</sup> /44 <sup>th</sup> /45 <sup>th</sup> Airborne Divs

\* RDU

\*\* RRU

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### **III. QUANTIFYING THE PLANNING THREAT AND ROK FORCES**

#### **A. PLA GROUND FORCES**

According to *The Military Balance 2009*, total personnel strength available to PLA ground forces against a reunified Korea would be about 540,000–250,000 in Shenyang MR, 190,000 in Jinan MR, and 100,000 in the 38<sup>th</sup> Mechanized GA (including Military District, garrison units and combat support service assets such as training facilities) (International Institute for Strategic Studies, 2009). However, even though there is a great deal of information about PLA ground forces personnel and equipment, there is no comprehensive assessment of capability because of Chinese secrecy regarding types and number of equipment. Therefore, this study relied on the RAND source, whose authors gained information from a parade commemorating the 50<sup>th</sup> anniversary of the founding of the PRC that was held on 1 October 1999 (Blasko, 2002, pp. 337–344) and some unofficial information from Web sites estimating the structure, manpower, and equipment of each type of unit (<http://cafe.naver.com/biofund/68>).

For armored Div structures, based on Table 5, this study regarded the structure of PLA ground forces' 4<sup>th</sup> and 8<sup>th</sup> Armored Divs, which are not available to the public, as probably similar to the 6<sup>th</sup> Armored Div, about which this type of information is available. Basically, an armored BDE has one mechanized infantry battalion, which has 40 armored personnel carriers (APCs) or infantry fighting vehicles (IFVs); four tank battalions, which have three tank companies with 10 main battle tanks (MBTs) per company; one artillery battalion with 18 self-propelled (SP) howitzers and one AAA battalion.

An infantry Div has three infantry regiments, one armored regiment, and one artillery regiment. This study regarded motorized infantry regiments to be the same as infantry regiments except for being equipped with APCs, IFVs, and trucks for rapid deployment. Actually, BDEs' composition and strengths are not easy to estimate because their structures tend to be different based upon their missions. The RAND study indicates

that an armored BDE usually consists of several battalions, with one-third to half the personnel strength of a Div, but “it has regiment as intermediate headquarter between BDE and battalion,” (Blasko, 2002, p. 321). In addition, one mechanized BDE in Shenyang and one armored BDE in Beijing exercised during the period 10–15 September 2006, with reported personnel strengths of 3,000 per BDE. Therefore, this study assumed that each infantry BDE has, on average, three infantry battalions, one tank battalion, and one artillery battalion and that a mechanized infantry BDE might have three mechanized infantry battalions, with each battalion having 31 IFVs; one armored battalion; and one artillery battalion. Therefore, a mechanized infantry BDE may have approximately 93 IFVs and 31 MBTs.

Motorized BDEs have, on average, three motorized infantry battalions, one tank battalion, and one artillery battalion. An armored BDE would have three tank battalions, one mechanized infantry battalion, and one artillery battalion, for a total of 93 MBTs, 40 APCs, 18 SP howitzers, and 6 AAA pieces.

In addition, RAND found that the 6<sup>th</sup> Artillery BDE, in Beijing MR, has about 340 officers, 220 noncommissioned officers (NCOs), and 1700 enlisted men organized into five battalions, each with 18 guns or rocket launchers (Blasko, 2002). This thesis assumes that other artillery BDEs are similar to the 6<sup>th</sup> Artillery BDE.

The 1<sup>st</sup> Army Aviation Regiment has 16 Mi-17s, 3 Mi-6s, and 1 Mi-8. The 8<sup>th</sup> Army Aviation Regiment has 12 WZ-9s, 12 Z-9s, 12 Mi-8s, and 12 Z-11s. The 9<sup>th</sup> Army Aviation Regiment has 10 WZ-9s, 10 Z-9s, and 8 Mi-17s. The unidentified army aviation regiment has 10 utility-type and 15 attack helicopters.

In summation, total deployable PLA personnel strength and equipment would be 107,000 infantry troops, 2,720 MBTs, 1,880 IFVs/APCs, and 1,700 artillery pieces. See Table 6.

Table 6. Manpower Assigned to PLA Ground Forces Unit  
(From Mulvenon & Yang, 2002)

	<b>Div</b>	<b>Regiment</b>	<b>Battalion</b>
<b>Infantry</b>	12,000-13,000	2,800	700
<b>Armor</b>	10,000	1,200	175
<b>Artillery</b>	5,000-6,000	1,100	275
<b>AAA</b>	5,000	1,000	250

## **B. PEOPLE’S LIBERATION ARMY AIR FORCE (PLAAF)**

Since one PLAAF mission is to support ground forces through close air support (CAS), it is important to estimate available air forces for a Korea Campaign. To be responsive to PLA needs, PLAAF operational units are usually under the command of MR even if they are reported to an Air Force headquarters. PLAAF operational units are organized into Divs, BDEs, regiments, groups, squadrons, battalions, companies, platoons, squads, and flights—depending on the unit’s mission. Each Div usually has two regiments and one air regiment, which consists of three squadrons and has up to 36 fighters or bombers. Based on analysis of the PLA ground forces’ threat, this study estimated that operational units attached to the Beijing MR, Shenyang MR, plus all fighters and bombers in the Jinan MR, could participate in operations against Korea. However, because of Beijing MR’s own mission, and the threat of other neighboring countries such as Russia and Mongolia, and because of lack of maintenance and logistics, it is not easy to deploy all of the fighters in the Beijing, Shenyang, and Jinan MRs. Therefore, this study assumed that the Beijing MR would not deploy the 24<sup>th</sup> Air Div, whose mission is air defense.

The Jinan MR might use all its aircraft but a lack of facilities and logistics at the Shenyang airbase would make it difficult for them to attack alongside Shenyang operational units.

From Table 7, it appears that there are 23 deployable air regiments, including two reconnaissance air regiments, that have the J-7/J-8/Q-5 series, as well as J-11/Su-27/JH-

7As. Assuming that each air regiment has 36 combat aircraft (with JH-7 regiments having 20 aircraft), there are 288 J-7s, 108 J-8 series aircraft, 108 J-11s, 36 Su-27s, 144 Q-5 series, and 20 JH-7As.

Table 7. Order of Battle of Deployable PLAAF to Korea Campaign (From Jane's Information Group, 2009)

MR	Unit	Base	Type	Role
<b>Shenyang</b>	1st Air Div			
	1st Air Regiment	Anshan	J-11	Air Superiority
	2nd Air Regiment	Chifeng	J-7E	Air Defense/Attack
	3rd Air Regiment	Anshan	J-8F	Air Defense
	11th Air Div			
	31st Air Regiment	Siping	Q-5D	Attack
	32nd Air Regiment	Siping	Q-5D	Attack
	21st Air Div			
	61st Air Regiment	Mudanjiang-Hailang	J-8H	Air Defense/Attack
	62nd Air Regiment	Qiqihar	J-7	Air Defense/Attack
	63rd Air Regiment	Mudanjiang-Hailang	J-7	Air Defense/Attack
	30th Air Div			
	Air Regiment	Dandong	J-8E	Air Defense/Attack
	Air Regiment	Dalian	J-7E	Air Defense/Attack
	4th Reconnaissance Air Regiment	Shenyang-Yu Hung Tun	JZ-8	Tactical reconnaissance
<b>Beijing</b>	7th Air Div			
	19th Air Regiment	Zhangjiakou	J-11	Air Superiority
	15th Air Div			

MR	Unit	Base	Type	Role
	43rd Air Regiment	Huairan (unconfirmed)	J-7C	Night fighter
	44th Air Regiment	Lingqiu (unconfirmed)	Q-5	Attack
<b>Jinan</b>	5th Air Div			
	13th Air Regiment	Weifang	Q-5	Attack
	14th Air Regiment	Weifang	JH-7A	Attack
	12th Air Div			
	34th Air Regiment	Jinan	J-7G	Air Defense/Attack
	35th Air Regiment	n/a	J-7	Air Defense/Attack
	36th Air Regiment	n/a	J-7	Air Defense/Attack
	19th Air Div			
	55th Air Regiment	Jining	Su-27	Air Superiority
	55th Air Regiment	Jining	J-11	Air Superiority
	56th Air Regiment	Zhengzhou	J-7B	Air Defense/Attack
	1st Reconnaissance Air Regiment	Wendeng	JZ-6 (unconfirmed)	Tactical reconnaissance

### C. APPLYING THE TASCFORM METHOD FOR ASSESSING COMPARATIVE FORCES' MODERNIZATION FOR PLA

So far, we have quantified PLA ground forces and PLAAF combat capabilities based on what weapon types they have and how many. However, just knowing the number and type of PLA ground forces and PLAAF weapons is not sufficient; it might result in wasting resources in fielding a KFA to defend against a weak PRC threat. Although the Chinese military maintains a considerable number of weapons, these weapons vary from old-fashioned to high-tech. Therefore, it is essential to quantify the threat based on their combat characteristics, such as payload, firepower, maneuverability,



etc. To get the real combat capabilities, this study applied TASCFORM, which “provides static indicators of military force potential called measures of effectiveness (MOEs)” (Regan, 1995, p1–1). In TASCFORM, there are scores for Weapon Potential (WP), Weapon System Potential (WSP), Adjusted Weapon System Potential (WSP), Adjusted Weapon System Potential (AWSP), Designated Force Potential (DFP), and Equivalent Force Potential (EFP) (Table 8). In this analysis, we will use AWSP scores for 1999, called AWSP9, as the relevant TASC scores because it adjusts WSP for TASCFORM bridging factors in relating ground forces to tactical air (TACAIR) assets.

Table 8. Definition of TASC Score (From Regan, 1995)

<b>TACAIR Measures of Effectiveness</b>	<b>Description</b>
<b>WP</b>	Basic system measure of effectiveness reflecting: <ul style="list-style-type: none"> <li>• Payload</li> <li>• Range, basing models, and standoff weapon range</li> <li>• Maneuverability</li> <li>• Speed/mobility</li> </ul>
<b>WSP</b>	Adjusts WP for <ul style="list-style-type: none"> <li>• Target acquisition and guidance/fire control</li> <li>• Susceptibility to countermeasures</li> <li>• Weapon enhancements</li> <li>• Navigation</li> <li>• Survivability</li> <li>• Minimum range capability</li> <li>• Mobility enhancement</li> </ul>
<b>AWSP</b>	Adjusts WSP for <ul style="list-style-type: none"> <li>• Obsolescence (which can be included to produce depreciated measures of effectiveness or excluded at the analyst’s discretion)</li> <li>• Productivity</li> <li>• TASCFORM bridging factor</li> </ul>

<b>TACAIR Measures of Effectiveness</b>	<b>Description</b>
<b>DFP</b>	Basic force level measure of effectiveness considers: <ul style="list-style-type: none"> <li>• Distribution of assets</li> <li>• Inventory levels</li> </ul>
<b>EFP</b>	Adjust for <ul style="list-style-type: none"> <li>• Command, control, communications, and intelligence (C3I) system effects</li> <li>• Aircrew proficiency</li> <li>• Logistics and maintenance</li> <li>• Multi-role capability</li> <li>• Tactical impact of inventory changes</li> </ul>

Because TASCFORM analysis does not include all PLA ground forces and PLAAF weapons, there are some missing data. Therefore, this study uses closely related weapon types to score PRC weapons based on available data or the author's guess. For example, there is no score for the J-11, so this study assigned the Su-27's score to the J-11 as well because the Su-27 is the most similar to the J-11 (Wikipedia). For unrecognized weapons, this study assigns the most common weapon's or possible weapon's score. So, for example, this study assigned the WZ-523's score to unknown APCs (Jane's). However, for unknown MBTs, this study assigned the Type-96's score based on their mission and character of unit—even though PLA ground forces possess more T-59s. For unknown attack helicopters and utility helicopters, this study assigned Mi-17 and Z-9 scores, respectively. This study also decided to exclude the Z-11, which is manufactured in PRC, from scoring because it is used for command, control, reconnaissance, and training, which does not directly damage an enemy (GlobalSecurity.org).

Unfortunately, there is no data corresponding to a rifleman's TASC score, so this study extrapolated the rifleman's score from Mako's study (Mako, 1983, pp114-125). Even though there is a difference in combat power between PLA infantry and ROK

infantry, it varies according to individual characteristics. Because ROK infantry would generally be in defensive positions when war breaks out, ROK infantry will be in a superior tactical position than PLA infantry. Therefore, this study weighed ROK infantry by multiplying by 1.2 while PLA infantry score remains at the baseline value. In Mako's study, he assigned a weight value of 55 to the M60A1 tank while the Weapon Effectiveness Index (WEI) is 1 and assigned small arms 1.2 for category weight and 1 for WEI. Based on his study, this study assumed that an infantryman's combat capability is one-fifty fifth that of an M60A1. The AWSP9 of the M60A1 is 3.230, and so this study arrived at the conclusion that the infantryman's TASC score would be 0.059 (3.230/55). Therefore, the PLA ground forces and PLAAF's TASC scores will be as shown in Tables 9 and 10.

Table 9. PLA Ground Forces TASC Score (AWSP 9)

	Type of weapon	AWSP9 Score	Quantity	Score (AWSP9*Quantity)
<b>Small Arms</b>	Rifle	0.059	107000	6313
<b>MBT</b>	Type-98A/96 (aka T-80)	5.507	100	551
	Type-88B	4.673	200	935
	Type-95I	4.7	100	470
	Type-79	1.799	100	180
	Type-59B	1.31	100	131
	Type-59D	1.799	100	180
	Type-70	2.411	100	241
	Unknown (Type-96)	5.507	1920	10573
<b>IFV / APC</b>	WZ-551	1.157	180	208
	Type-86A	1.942	100	194
	WZ-501	1.942	1300	2525
	Type-63	0.744	200	149
	Type-89I	0.514	100	51

	Type of weapon	AWSP9 Score	Quantity	Score (AWSP9*Quantity)
<b>Artillery</b>	Type-83 SP MRLs	10.383	216	2243
	Type-89I SP Guns	5.322	108	575
	Type-83(H)	3.393	198	672
	Type-89I(H)	1.744	540	942
	122 MRLS	10.383	126	1308
<b>AA Guns</b>	Type-37/56	0.382	162	62
	Type-65	0.135	216	29
	HQ SAM	0.666	108	72
<b>Mortar</b>	120mm(SP)	1.435	63	90
<b>Helicopter</b>	WZ-9 / Z-9 (aka AS 365N Dauphin) (Wikipedia)	1.732	54	94
	Mi-6	0.787	3	2
	Mi-8	2.018	23	46
	Mi-17	2.099	24	50
<b>Total Score</b>	28,886			

Table 10. PLAAF TASC Score (AWSP9)

Type	AWSP9 Score	Number of Aircraft	Score
J-7	10.923	288	3146
J-8: (E/F/H)	8.606	108	929
Q-5	3.807	144	548
J-11(aka Su-27SK)	13.244	108	1430
Su-27	13.244	36	477
JH-7A	18.527	20	371
<b>Total Score</b>	6,901		

So, the total TASC score for PLA is 35,787.

#### **D. TASC SCORES—ROKA AND ROKAF (REPUBLIC OF KOREA AIR FORCE)**

This study also scored ROKA and ROKAF's combat capability and compared it to the PLA threat (see Tables 11 and 12). Although ROK maintains huge reserve forces (4.5 million), they are poorly equipped with weapons and it takes several days to be ready for combat; mobilization and training is needed to call them up, make them regain combat sense, know their mission, etc. So, it is not easy to estimate precisely how they use their combat ability during war. In addition, reserve forces should be considered as a last resort, when the Korean military cannot resist an enemy's attack with active forces, not as a part of units that are automatically deployed when war breaks out. Therefore, this study excludes reserve forces when generating a TASC score for ROKA, PLA and, later, when building a KFA.

Table 11. ROKA TASC Score (AWSP9)

	Type	AWSP9 Score	Equipment Quantity	Score
<b>Small Arms</b>	Rifle	0.0708	90,332	6,396
<b>MBT</b>	T-80U	5.507	80	441
	Type-88	4.673	1,000	4,673
	M-47	1.53	400	612
	M-48	1.57	850	1,335
<b>AIFV</b>	BMP-3	2.245	40	90
	K200A1	1.775	2,000	3,550
	K200	1.184	1,700	2,013
	M-113	0.867	420	364
	M-577	1.05	140	147
	BTR-80	0.95	20	19
	KM-900/901	1.056	200	211
<b>Artillery</b>	K-9 (aka PzH 2000 155mm SP)	8.067	1,076	8,680
	K-55 (aka M-109 A2)	7.098	1,040	7,382
	M-110	8.346	13	108
	M-101/KH-178	2.362	1,700	4,015
	M-114/M-115/KH-179	3.867	1,800	6,961
	Kooryong	12.383	156	1,932
	227mm MRLS	33.204	29	963
	KM-29	1.157	6,000	6,942
<b>AAA</b>	I-HAWK	1.104	158	174
	Patriot	4.938	48	237
	MIM-14	1.222	200	244

	Type	AWSP9 Score	Equipment Quantity	Score
	20mm Vulcan	0.386	150	58
	BIHO	0.29	20	6
	20mm Vulcan	0.237	60	14
	GDF-003	3.663	20	73
<b>Helicopter</b>	AH-1F/AH-1J	3.182	60	191
	AS-332L	1.732	3	5
	BO-105	1.134	12	14
	HUGHE 500D	0.916	130	119
	MD-500	1.046	45	47
	UH-1H	0.835	20	17
	UH-60P	3.075	130	400
<b>Total</b>	58,433			

Table 12. ROKAF TASC Score (AWSP9)

Type	AWSP9 Score	Number of Aircraft	Score
F-15K	24.219	59	1,429
F-5B	4.571	20	91
F-5E	7.892	142	1,121
F-5F	7.858	32	251
KF-16C	12.425	118	1,466
KF-16D	9.53	47	448
F-4E	9.922	70	695
<b>Total Score</b>	5,501		

The total score for ROK is 63,934, which is higher than that for PLA. Because this study has better data about ROK forces than PLA, this estimated difference might differ from the current situation. Although ROK has a higher score than PLA, this does

not guarantee that ROK would be superior to PLA during an engagement. Because the relevant border for mounting an attack is 1,311 km, which is the combined length of the Amnok and Tumen Rivers, ROK has to deploy units to several places to cover all border crossings while PLA can focus all of its assets to one place to infiltrate a defensive line. Therefore, ROK has to have a strategic reserve with a TASC score similar to PLA's deployable units in addition to all guard units which could be deployed across the border.



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## **IV. CASE STUDY OF GERMANY'S MILITARY INTEGRATION**

### **A. REUNIFICATION OF KOREA SCENARIO**

As previously stated in this study, the appropriate military integration process will vary with the national reunification scenario. According to the RAND study, "Preparing for Korean Unification: Scenarios and Implication" (Pollack, 1999), reunification scenarios can be categorized as follows:

- Integration and peaceful reunification
  - ROK and DPRK begin to increase economic, social, and political interaction and accomplish national reunification without any engagement.
- Collapse and absorption
  - A worsening economic and political situation drives Kim Jung-il (or his successor) to lose power over the DPRK. A military coup or people's demonstration ensues, with the U.S. and ROK restoring stability in the North Korea region.
- Reunification through conflict
  - To maintain communism and dictatorship by Kim Jung-il (or his successor), DPRK invades ROK. However, ROK-U.S. combined forces repel DPRK's attack, conquer North Korea, and receive DPRK's surrender.
- Disequilibrium and potential external intervention
  - Kim Jung-il's regime is overthrown but the successor government cannot afford to resolve economic problems and political instability. As a result, the DPRK government asks for the international community's support.

Among these four scenarios, the disequilibrium and potential external intervention scenario do not seem to directly lead to reunification. In addition, reunification through war might lead to focusing on reconstruction of damaged areas, and rounding up the

remaining enemy troops, rather than absorbing KPA, which precludes consideration of one of the major research questions of this study. Therefore, this study assumes reunification will occur through peaceful agreement or DPRK's collapse, so ROK is in control of the reunification process, and under which circumstances some strong opposition groups could cause serious damage unless dealt with effectively.

## **B. GERMANY'S MILITARY PERSONNEL INTEGRATION**

To avoid mistakes during the reunification process, it is a good idea to analyze previous similar cases and apply lessons learned to Korea—with perhaps some modifications. The most relevant and useful case is the reunification of East and West Germany. Germany had been split since its unconditional surrender on 8 May 1945 until 3 October 1990. In 1985, Soviet General Secretary Mikhail Gorbachev began his perestroika policy and tried to build new relationships with Western countries. Moreover, some of the Eastern countries suffered severe economic problems and communism no longer seemed to be a solution to these problems. These developments motivated East Germans to demonstrate for democracy and to immigrate in larger numbers to Western countries.

To maintain control, the East German government asked the military to repress demonstrations and demanded Soviet military intervention. However, with breakdowns of military and civil authority, the government failed to repress its people and agreed to establish a government through election.

Because the reunification process was led by West Germany, the Bundeswehr (West German military) made plans to absorb East Germany's military. At that time, the Bundeswehr maintained 5.5 times more military personnel, 2–3 times more weapons, and spent 2.6 times more money on its military than East Germany (Moon, 2005). Because the National People's Army (National Volksarmee or NVA) of East Germany supported the political system as their main mission, 96% of its officers and 60% of its noncommissioned officers were communists (Moon, 2005). Furthermore, the military consisted of 37.3% officers and the ratio became 72.7% when including noncommissioned officers, which was a much higher ratio than applied to the

Bundeswehr (Moon, 2005). West Germany organized the Bundeswehr Eastern Command and began to reorganize the NVA into one Corps with 50,000 troops. Based on its own criteria (Table 13), the Bundeswehr examined 60,000 candidates who wanted to stay in the military and selected 10,800 of them to serve in the German confederation military after receiving additional training (Moon, 2005). While discharging every general officer, political officer, psychological warfare officer, and military judicial officer, special technicians in various categories were permitted to join the unified German military (Moon, 2005). Some high-ranking officers were downgraded after consideration of their ages (Moon, 2005). To reduce its military force to 0.37 million, which was its appropriate number, the conscription period was shortened from 15 months to 12 months (Moon, 2005). By increasing the combined percentage of officers and noncommissioned officers from 45.4% to 58%, the military had flexibility in increasing its forces in emergency. As a result, Germany could unify its military and provide an adequate defense with 370,000 military personnel (Table 14) (Moon, 2005).

Table 13. Criteria of Selection (From Moon, 2005)

	<b>Criteria</b>	<b>Number of Personnel</b>	<b>Management</b>
<b>A</b>	Useful position after unification	773 positions (27,200)	Accept as member of German military
<b>B</b>	Unnecessary position	516 positions (27,600)	Pick some up after screening
<b>C</b>	Political/Psychological warfare officer	58 positions (5,200)	Discharge

Table 14. Military Forces of West Bundeswehr and NVA before Unification  
(From Moon, 2005)

		Before Unification		After Unification (1995)
		West	East	
<b>Personnel</b>	<b>Army</b>	345,000	120,000	255,000
	<b>Navy</b>	39,000	16,000	33,000
	<b>Air-Force</b>	111,000	37,100	82,000
	<b>Total</b>	495,000	173,000	375,000
<b>Unit</b>	<b>Army</b>	12 Divs 3 Military Regional Commands	6 Divs 2 Military Regional Commands	8 Divs 3 Military Regional Commands
	<b>Navy</b>	6 Fleets	3 Fleets	5 Fleets
	<b>Air-Force</b>	4 Divs	2 Divs	5 Divs
<b>Equipment</b>	<b>Army</b>	Tanks 4,227 APC 6,201 Artillery 2,488 Helicopter 697	Tanks 3,150 APC 6,400 Artillery 2,500 Helicopter 3,600	Tanks 7,090 APC 10,995 Artillery 3,318 Helicopter 840
	<b>Navy</b>	Submarine 24 Destroyers 7 Flight Fighter 123	Submarine 19 Helicopter 12	Submarine 22 Destroyers 14 Flight Fighter 118 Helicopter 41
	<b>Air-Force</b>	Flight Fighter 486 Scout plane 60 Helicopter 96 Transporter 162	Flight Fighter 275 Helicopter 140 Transporter 32 Missile 205	Flight Fighter 653 Helicopter 175 Transporter 85 Missile 611
<b>ETC</b>		Reserve 180,000 National Guard 20,000	Reserve 323,500 National Guard 47,000	Reserve 530,000 National Guard 38,000

### C. COMPARISON OF GERMAN AND KOREAN SITUATIONS BEFORE REUNIFICATION

The reunification of Germany is a good reference case for planning for a unified Korean military. However, it is necessary to understand the situational differences between Korea and Germany before applying the German model to a Korean military integration.

First, the Bundeswehr was larger than NVA. In contrast, the DPRK military maintains almost twice as many personnel and has 1.2 to 1.7 times as many weapons as ROK. KPA itself maintains 1.7 times more personnel than ROKA (Table 15). If ROK fails to demilitarize and reorganize the DPRK military effectively, internal conflicts will likely ensue, resulting in high unemployment rates for former military personnel, which would be a source of instability even without armed conflict breaking out.

Table 15. Military Forces of ROK and DPRK (From IISS, 2009)

		<b>Before Unification</b>	
		<b>South</b>	<b>North</b>
<b>Personnel</b>	<b>Army</b>	560,000	950,000
	<b>Navy</b>	68,000	46,000
	<b>Air-Force</b>	64,000	110,000
	<b>Total</b>	687,000	1,106,000
<b>Units</b>	<b>Army</b>	17 Infantry Divs 5 Mechanized Infantry Divs	27 Infantry Divs 4 Mechanized Corps
	<b>Navy</b>	3 Fleets 2 Marine Divs 1 Marine BDEs	4 Fleets
	<b>Air-Force</b>	12 Wings	4 Divs

		<b>Before Unification</b>	
		<b>South</b>	<b>North</b>
<b>Equipment</b>	<b>Army</b>	Tanks 2,330 APC 2,480 Artillery 10,774 Helicopter 418	Tanks 3,500 APC 2,500 Artillery 17,00 Missile 64
	<b>Navy</b>	Submarine 12 Destroyers 10 Aircraft 8 Helicopters 24	Submarine 63 Frigates 3 Corvettes 5
	<b>Air-Force</b>	Fighter 491 Helicopter 56	Fighter 630 Helicopter 302
<b>ETC</b>		Reserve 4,500,000 Paramilitary 3,500,000	Reserve 4,700,000 Paramilitary 3,500,000

Second, military officers are accustomed to taking political and economical advantage of DPRK's "Military First" policy. Integration seems to be a threat to their current positions just as most NVA officers were discharged upon absorption into West Germany. DPRK officers would likely not give up their current privileges willingly and might trigger a coup against reunification. In addition, because the DPRK military maintains a close relationship with PLA, its members could try to deter reunification through PRC intervention. PRC once supported the DPRK by sending numerous Chinese People's Volunteers (CPVs) and still maintains PRC-DPRK relations—including military-to-military ties (Son, 2003). Furthermore, the DPRK military's opposition to reunification might provide the PRC with a reason to intervene in a Korean reunification. Also, according to Within Beijing (Kim, 2002, p. 130), PRC would experience the following negative impacts from a Korean reunification:

- A reunified Korea would remove the DPRK as PRC's critical buffer zone.
- Korean reunification would diminish Beijing's leverage in Korean and world affairs, including its relations with the U.S.

- Korean reunification could spew more refugees from DPRK into PRC's northeastern provinces.
- A reunified Korea could bring about possible territorial conflicts regarding the PRC-Korea border.

Therefore, DPRK personnel who disagree with reunification will be a major threat to ROK during the reunification process unless there is some guarantee regarding their social and economical situation post-reunification.

#### **D. APPLYING GERMANY'S MILITARY INTEGRATION CASE TO THE KOREAN MILITARY INTEGRATION PROCESS**

To minimize potential problems, such as a coup d'état by those who fear reunification, ROKA should formulate what a post-reunification Korean military would look like, what its mission would be, what its size should be, and how DPRK forces (especially the army) would be absorbed into the unified Korean military (especially KFA).

At first, ROKA should demobilize the DPRK army while preventing or controlling armed resistance (perhaps in the form of an insurgency). So, ROKA should attempt to gain the support of senior DPRK officers by persuading them not to spread canards within DPRK—such as rumors of job losses and social instability after being absorbed into KFA. Therefore, ROKA needs make clear the criteria for accepting DPRK soldiers into KFA, and how to keep the remaining DPRK soldiers from experiencing economic difficulties.



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## **V. MODELING THE KOREA FEDERAL ARMY (KFA)**

### **A. COMPONENTS AND SIZE OF KFA**

To estimate a reasonable size for KFA, this study used TASC scores as a basis and also considered what KFA roles will be needed after reunification. According to ROK Defense White Paper 2006, the objectives of the Ministry of National Defense (MND) are, “defending the nation from external military threats and invasion, upholding peaceful unification and contributing to regional stability and world peace.” Based on MND’s objectives, this study found that KFA’s roles would be “(a) guarding the country from external military threats and invasion mainly from PRC, (b) participating in stabilization and reconstruction of DPRK Region, (c) defense against internal threats from terrorists and insurgents and (d) participating in Peace Keeping activity” (Defense White Paper, 2006, pp. 30–31).

To fulfill these roles, KFA should have enough high-intensity combat units (HICUs) to equal the PLA threat’s TASC scores, with some territorial defense units (TDUs) to cover the Korea-PRC border, guard the coasts, and deal with terrorism or insurgency. In addition, Korea should have a least one BDE for peacekeeping abroad.

#### **1. High-Intensity Combat Units (HICUs)**

To defend against external military threat which is mainly PRC, a reunified Korea should maintain military forces sufficient to deter a PLA invasion by providing a robust conventional defense of Korean territory. Those combat forces should be structured to operate effectively at the PRC-Korea border. Because most of the border is covered by the Amnok and Tumen Rivers, and a reunified Korea’s military will likely have advanced surveillance equipment, such as the Airborne Warning and Control System (AWACS), it would seem to be impossible for PLA to prepare for an attack and to cross the border without a reunified Korea’s detection and recognition. Therefore, this study assumes KFA will be ready to defend PLA’s attack before PLA crosses the border, so KFA will not need to deploy units across the border to watch PLA’s movements—as ROKA and

KPA are currently deploying heavy forces across the Demilitarized Zone (DMZ). While KFA has a defender's advantage at the land border, it also has a burden to provide forces to deal with the possibility of amphibious attacks. In addition, commanders' leadership, strategic knowledge, and unit morale are important factors in determining combat capability. However, intangible factors such as these are too complicated to precisely assess (absent detailed situational knowledge), so this study approaches sizing the KFA combat force by building forces with similar TASC scores as the PLA threat. Because the reunified Korean army will aim at high-technology equipment, high-intensity firepower, and highly mobile forces, every KFA Div will be similar to U.S. mechanized infantry or armored Divs. Therefore, this study focuses on building structures similar to U.S. mechanized infantry or armored Divs from 1978 and adjusting them to be suitable for the expected operational environment (Tables 16 and 17).

Table 16. U.S. Mechanized Infantry Div (December 1978)  
(From Mako, 1983, p. 114)

<b>Category</b>	<b>Weapons</b>	<b>Number of Weapons</b>
<b>I</b>	Small Arms	3,456
<b>II</b>	APCs	582
<b>III</b>	Tanks	216
<b>IV</b>	Armored Recon Vehicles	27
<b>V</b>	Antitank Weapons	402
<b>VI</b>	Artillery	66
<b>VII</b>	Mortars	103

Table 17. U.S. Armored Div (December 1978) (From Mako, 1983, p. 115)

<b>Category</b>	<b>Weapons</b>	<b>Number of Weapons</b>
<b>I</b>	Small Arms	2,880
<b>II</b>	APCs	555
<b>III</b>	Tanks	324
<b>IV</b>	Armored Recon Vehicles	27
<b>V</b>	Antitank Weapons	344
<b>VI</b>	Artillery	66
<b>VII</b>	Mortars	98

Based on U.S. Div structure, this study added attack helicopters for mountain operations and air defense units for rapid response to enemy air attack. So, a KFA mechanized infantry (armored Div) will be approximately 15,000 personnel (12,000 personnel in armored Div) and consist of:

- An armored BDE that consists of two tank battalions and one mechanized infantry battalion (two armored BDEs for an armored Div)
- Two mechanized infantry BDEs that consist of one tank battalion and two mechanized infantry battalions per BDE (one mechanized infantry Div for an armored Div)
- One artillery BDE that consists of four SP artillery BDEs
- One reinforced anti-air defense company
- One army aviation company
- Other combat support and combat service support units.

In addition, to support corps and attached Divs, KFA will have artillery BDEs that consist of four 155 mm SP artillery BDEs and one 130 mm Multi-Launch Rocket System (MLRS) battalion.

In generating the TASC score of a KFA mechanized infantry/armored Div, this study excludes antitank weapons and mortars to be consistent with the TASC result generated for PLA. Those types of weapons were not considered for PLA due to data constraints.

From Tables 18, 19, and 20, the TASC score of a KFA mechanized infantry Div is 3,059, a KFA armored Div is 3,564, and an artillery BDE is 804, which means that a reunified Korea needs at least six mechanized infantry Divs, three armored Divs, and three artillery BDEs to bring its total score to 31,458, which is larger than PLA's score of 28,886<sup>6</sup>. To carry out their missions effectively, these mechanized infantry Divs and armored Divs will be reorganized as two mechanized infantry corps (I and II) and one armored corps (III). The I Mechanized Infantry Corps will consist of two mechanized infantry Divs, one armored Div and one artillery BDE. It will be located in the northern part of Korea to react rapidly to an invasion. The II Mechanized Infantry Corps will consist of three mechanized infantry Divs and one artillery BDE. It will be located in the central part of Korea to fortify a second front line and cover any retreat of the I Mechanized Infantry Corps. The III Armored Corps will consist of two armored Divs, one mechanized Div and one artillery BDE. It will be located in the southern part of Korea as a strategic reserve<sup>7</sup> and to counterattack. Although this study only addresses conventional weapons, there will be special forces BDEs for unconventional warfare and a missile command to control Korea's various missile units such as Army Tactical Missile System (ATACMS), Patriot, and Hyunmoo ballistic missile. Because small arms are likely to predominate in special operation forces, the TASC total would be negligible.<sup>8</sup> Also, to achieve essential equivalence of regional PLA and KFA HICU,

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<sup>6</sup> Although the total TASC score of PLA is 35,787, this study just focuses on PLA ground forces because this study excludes Korea Federal Air Force and the TASC scores of aircraft should not be added to those of ground weapons without additional analysis.

<sup>7</sup> Although the term strategic reserve is used in this thesis, the specifics of the actual combat environment might result in different uses of the three "strategic reserve" HICU divisions. They might be employed against amphibious operations and other contingencies.

<sup>8</sup> For this reason, this thesis also doesn't consider HDUs, Expeditionary Units in balancing combat capability with PLA.

only available TASC scores were used. Therefore, these unconventional units are not considered in this thesis.

Table 18. TASC Score of KFA Mechanized Infantry Div

<b>Category</b>	<b>Type of Weapon</b>	<b>Number of Weapons</b>	<b>TASC Score</b>	<b>Total Score</b>
<b>I</b>	Small Arms	3,456	0.0708	245
<b>II</b>	APC(K-200A1)	582	1.775	1,033
<b>III</b>	Tanks (K-1)	216	5.507	1,190
<b>IV</b>	Artillery (K-55)	72	7.708	555
<b>V</b>	Air Defense/Arty(BIHO)	24	0.29	7
<b>VI</b>	Armed Helicopter(AF-1F)	9	3.182	29
<b>Total Score</b>				3,059

Table 19. TASC Score of KFA Armored Div

<b>Category</b>	<b>Type of Weapon</b>	<b>Number of Weapons</b>	<b>TASC Score</b>	<b>Total Score</b>
<b>I</b>	Small Arms	2,880	0.0708	204
<b>II</b>	APC(K-200A1)	555	1.775	985
<b>III</b>	Tanks(K-1)	324	5.507	1,784
<b>IV</b>	Artillery (K-55)	72	7.708	555
<b>V</b>	Air Defense/Arty(BIHO)	24	0.29	7
<b>VI</b>	Armed Helicopter(AF-1F)	9	3.182	29
<b>Total Score</b>				3,564

Table 20. TASC Score of KFA Artillery BDE

Category	Type of Weapon	Number of Weapons	TASC Score	Total Score
I	Artillery (K-9)	72	8.067	581
II	MLRS(KOORYONG)	18*	12.383	223
<b>Total Score</b>				804

\* Although current ROKA has 12 MLRS per battalion, KFA will have 18 MLRS per battalion to maximize its effect, like the U.S. Army.

## 2. Homeland Defense Units (HDUs)

To react rapidly to insurgencies, terrorism, defense of rear lines, and in support of HICUs, KFA needs to have HDUs. The missions of HDUs are:

- Protect citizens, infrastructure, government offices, and historic sites from enemy
- Support HICUs' requirements, such as guarding logistics route, military facilities, and military transportation, as well as participating in stabilization operations
- Provide paramilitary support to local police forces and counterinsurgency operations
- Provide humanitarian assistance in the event of natural disasters or other emergencies
- Support provincial government requirements, such as participating in infrastructure construction.

Currently, ROKA maintains 13 homeland defense infantry Divs. A homeland defense infantry Div's main missions are guarding infrastructure and supporting conventional forces. This allows the conventional forces to fulfill their combat power by defending their rear areas from DPRK's Special Forces, which is very close to the mission of the TDUs. The homeland defense infantry Div consists of about 3,000 actives and 7,000 reserves. Based on the current ROK maintenance of one or two homeland defense infantry Divs per every province, a reunified Korea should have one homeland

defense infantry Div for each province, except the capital, Seoul. These homeland defense infantry Divs might be reinforced with equipment and active duty personnel. In the capital region, because of its importance and complexity, KFA should have a capital defense command that consists of two homeland defense infantry Divs. In addition, P'yongyang will need one homeland defense infantry Div because of its importance as a cultural and historical significance. In a reunified Korea, there will be 18 provinces in addition to the special districts of Seoul and P'yongyang, so KFA will establish the Homeland Defense Command, which consists of 18 homeland defense infantry Divs and the capital defense command for a total of 20 homeland defense infantry divisions.

Each homeland defense infantry Div will consist of about 3,500 actives and 10,000 reserves. The reserves are citizens who get basic training every year. The reserves main roles are guarding infrastructure, blocking possible terrorist attacks or escape routes, and assisting police in evacuating citizens. To cover the entire provincial area while maintaining small size, mobility is critical factor for the TDUs. Therefore, TDUs should be located near cities or central area of a province and equipped with helicopters, IFVs/APCs, and trucks.

The main structure of a homeland defense infantry Div will include:

- One rapid reaction BDE, which consists of four anti-terror battalions
- One medical battalion
- One engineering battalion
- One reserve training center
- Four mobilized reserve regiments
- Other combat support units

### **3. Expeditionary Units**

To respond to international society's demand, ROK decided in 2008 to build a crisis management force that is able to rapidly deploy all over the world to support emergencies (Yoon, 2009). This unit is supposed to play the roles of peacekeeping observation, reconstruction, medical support, and guarding the Korean people. Because of the high possibility of facing unexpected attack and terrorism, this unit would be based



on special forces, which are well-trained and have advanced combat skills. However, for operationally flexibility during dispatching, this unit should be attached directly to the Joint Chiefs of Staff. For construction and medical support, this unit is planned to have an engineering battalion and a medical battalion. Therefore, this unit would consist of:

- Four special mission battalions with approximately 1,000 total personnel.
- Combat support/service support forces with approximately 1,000 total personnel, including medical, engineering, and transportation units
- Strategic reserve forces with approximately 1,000 total personnel for use in shifting personnel to needed areas

The total number of expeditionary forces, therefore, will be approximately 3,200 (including manpower of command staffs). A reunified Korea also needs to have this type of unit to contribute to world peace. This unit will be belong to the Special Operation Command and will receive administrative support from the Joint Chiefs of Staff. The numbers of this type of unit could be increased based on a reunified Korea's economic conditions, status in the world, and the situation in troubled parts of the world. For maximizing its survivability, this unit will be equipped with high-technology equipment and weapons. Moreover, considering the long period of training required, this unit must have a slow cycle of human resources turnover by organizing it with professional soldiers.

To sum up, the overall structure of the KFA is represented in Table 21. However, the number of HICU can be varied depending on the PLA's regional military posture. In addition, this study didn't mention about combat support, combat service support, training facilities and special operation forces. Therefore, the total size of KFA will be approximately 350,000, including personnel above the Corps level.<sup>9</sup>

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<sup>9</sup> This thesis assumes that one Security BDE assigned to each HICU Corps. However, this thesis doesn't consider the TASC scores of Security BDE due to its TASC score is very small.

Table 21. Order of Battle of KFA

Type of Unit	Order of Battle	Subordinate	Manpower
<b>HICU</b>	I Mech. Inf. Corps	2 Mech. Inf. Divs 1 Armored Div. 1 Artillery BDE 1 Signal BDE 1 Special Assault Regiment	55,000
	II Mech. Inf. Corps	3 Mech. Inf. Divs 1 Artillery BDE 1 Signal BDE 1 Special Assault Regiment	55,000
	III Armored Corps	1 Mech. Inf. Div 2 Armored Divs 1 Artillery BDE 1 Signal BDE 1 Special Assault Regiment	50,000
	Missile Command	ATACMS BDE Hyunmoo BDE Patriot missile BDE Maintenance Facilities	15,000
	Special Warfare Command <sup>10</sup>	6 Special operations BDEs 1 Airborne BDE 1 Special mission BDE	17,000
<b>HDU</b>	Homeland Defense	18 Homeland Defense	65,000

<sup>10</sup> Under current ROKA reforms, Special Warfare Command consists of seven special operation BDEs and one special mission unit to six special operation BDEs, one special mission BDE and one airborne BDE. ROKA expects special forces to become modernized and multi-functional to deal with a new security environment after reunification (Weekly Chosun, 2000). Therefore, this study assumes that the structure and size of special forces after reunification will be similar to ROKA's special forces after reform.

Type of Unit	Order of Battle	Subordinate	Manpower
	Command	Infantry Divs	
	Capital Defense Command	2 Homeland Defense Infantry Divs	75,000
<b>Expeditionary Unit</b>	Expeditionary BDE		3,200

## **B. INTEGRATING KPA INTO KFA**

As mentioned above, one of the most important things in the unification process would be addressing DPRK forces after reunification. KPA maintains 950,000 personnel and reckless downsizing will cause strong resistance from KPA members and a high unemployment rate. Therefore, ROKA needs to plan how to downsize itself and integrate KPA into KFA.

### **1. Downsizing of ROKA**

If the ROK military and the DPRK military become unified, there will be 1.6 million forces on the Korean peninsula, which causes inefficiency and creates a sense of threat in neighboring countries. So, for maintaining military efficiency and avoiding heightened tensions with other countries, Korea needs to cut down its military forces carefully. Especially if unified Korean forces would be smaller than the current ROK force, the ROK military needs to prepare to reduce military posture. So, like the German military, ROKA would increase the ratio of officers and noncommissioned officers while decreasing the total number of military personnel. Although the army can expect an increase in the cost of maintaining people by increasing the number of officers and noncommissioned officers, the army can easily increase the military. Thus, by replacing the long periods of entry training needed for some soldier's positions, such as tank drivers, self-propelled gun drivers, radar operators, and mechanics to noncommissioned officers, the army expects to increase combat capability in terms of quality. In addition, by cutting down the conscription period from two years to one year, the army can reduce the force size naturally.

## **2. Downsizing of KPA**

In addressing KPA's downsizing case, a careful approach is required to minimize troubles. Although the Bundeswehr could integrate the NVA through establishing the Eastern Command, NVA officers were not satisfied with worse treatment than Bundeswehr officers after becoming members of a unified German military. A considerable number of former East German officers said that they would have accepted exile to other communist countries or protested the integration had they known of the unification process as directed by the Bundeswehr (Moon, 2005). The Bundeswehr accepted some NVA because they were needed for the unified military (after adjusting their ranks), selected some after examinations, and discharged people who were in the political, psychological, or no-longer needed positions. As a result, many former NVA personnel felt humiliated and developed psychological stresses by being discharged or demoted (Moon, 2005). Therefore, the ROK military should consider the DPRK military members' requests and do their best to satisfy their new positions while supporting KFA's strategic goal.

Based on DPRK's proportion of the population in a reunified Korea, the proportion of KPA in KFA will be one-third of total manpower, or approximately 120,000 personnel. So, KPA has to downsize from 950,000 to 120,000, which means 87 percent of them must retire, move to another job, or be discharged. For professional soldiers, the army can induce voluntary retirements by offering pensions and job training. It would be necessary to discharge people who are in political, judicial, or psychological positions just as the German military did. For enlistees, by reducing the conscription period from five-to-twelve years to one year and discharging enlistees who have already served more than one year, the army can expect a considerable decrease. For the remainder, the army will offer education programs to help KPA soldiers adjust to the new social and military system and discharge those who have trouble in adapting to the new army system due to differences in the social system and indoctrinated ideology or are otherwise not eligible to serve in KFA.

However, the discharge process should be flexible because KPA non-political military intellectuals or elite senior analysts can be helpful to KFA even if they might have more difficulty in adjusting. KFA can also utilize KPA senior officers as counselors, instructors, or professors in military-related schools. For harmony between ROKA and KPA, KFA can also assign some personnel of high competence and non-political officers as commanders of specialized task forces. In addition, it will be helpful for KFA to induce people to stay in the military who are in specialized positions, such as missilery, special warfare, and Soviet/PRC liaisons, for which they are better suited than ROKA personnel.

KFA should eliminate possible dissatisfaction factors for discharged personnel by offering job training programs to help them obtain new jobs without problems and to guarantee their economical stability. One way would be using them as a reconstruction workforce to rebuild North Korea region with modern infrastructure development. Establishing a government-owned company for reconstruction and hiring former KPA members at salaries commensurate with their military ranks would be helpful. To provide the budget resources for this endeavor, KFA can raise money by selling military equipment and weapons to other countries and selling land owned by the DPRK military.

### **3. Transforming KPA**

According to Bermudez' study, KPA is composed of Artillery Command, Mechanized Command, AAA Command, the Light Infantry Training Guidance Bureau, and 20 corps (twelve infantry, four mechanized infantry, one tank, two artilleries, and the P'yongyang Defense Command) with approximately 950,000 personnel (Bermudez, 2001, p. 57).

The mission of the artillery, mechanized, and AAA commands is exercising administrative control over all artillery, all tank and mechanized infantry, and all anti-aircraft/air defense-related units as well as providing logistics support. Among infantry corps, the I, II, IV, and V Infantry Corps are categorized as forward corps, which are deployed along the DMZ and are well-equipped and trained. The other corps are considered rear corps, which are smaller and more poorly equipped than forward corps.

So approximately 70 percent of active duty units are deployed in forward corps and more than half of the infantry units of the rear corps consist of mobilized Paramilitary Training Unit Divs (Bermudez, 2001, pp. 57–58).

Table 22. Order of Battle of Current KPA (From Bermudez, 2001, pp. 57)

<b>Order of Battle</b>	<b>Subordinate</b>	<b>Manpower</b>	<b>Location</b>
P'yongyang Defense Command	4 Infantry/Motorized Infantry Divs 4 Paramilitary Training Unit Divs 1 Tank Regiment 1 Artillery Regiment 1 MRL Regiment 1 Light Infantry Regiment 1 Technical Engineer Battalion 1 Communication Battalion 1 Nuclear-Chemical Defense Battalion 1 Transportation Battalion 1 Maintenance Battalion	70,000	P'yongyang
I Inf. Corps	5–6 Infantry /Motorized Infantry Divs	66,000– 76,000	Kangwon-Do
V Inf. Corps	1 Tank BDE 2–3 Light Infantry		Kangwon-Do
II Inf. Corps	BDEs 1 Sniper BDE 1 MRL BDE		Hwanghaebuk-Do

<b>Order of Battle</b>	<b>Subordinate</b>	<b>Manpower</b>	<b>Location</b>
IV Inf. Corps	1 Artillery BDE 1 AAA Regiment 1 Artillery Instrument Reconnaissance Battalion 1 ATGM Battalion 1 Anti-Tank Gun Battalion 1 Reconnaissance Battalion 1 Engineer/River-Crossing BDE 1 Technical Engineer Battalion 1 Road Construction Engineer Battalion 1 Electronic Warfare/SIGINT Battalion 1 Communication Regiment 1 Wire Maintenance Battalion 1 Nuclear-Chemical Defense Battalion 1 Transportation Battalion 1 Maintenance Battalion 2 Hospitals 2 Heavy Mortar Regiments		Hwanghaenam-Do
III Inf. Corps	2–5 Infantry Divs 1 Tank BDE 1 MRL BDE	29000-49000	P'yongannam-Do
XII Inf. Corps	1 Artillery BDE 1 AAA Regiment		P'yongannam-Do
VIII Inf. Corps	1 Artillery Instrument Reconnaissance Battalion 1 ATGM Battalion		P'yonganbuk-Do
VII Inf. Corps *	1 Anti-Tank Gun Battalion 1 Reconnaissance Battalion 1 Technical Engineer Battalion		Hamgyongnam-Do

<b>Order of Battle</b>	<b>Subordinate</b>	<b>Manpower</b>	<b>Location</b>
U/I Inf. Corps	1 Road Construction Engineer Battalion 1 Communication Regiment		Hamgyongnam-Do
IX Inf. Corps	1 Wire Maintenance Battalion 1 Nuclear-Chemical Defense Battalion 1 Transportation Battalion		Hamgyongbuk-Do
XI Inf. Corps **	1 Maintenance Battalion		Chagang-Do
X Inf. Corps **	1–2 Hospitals		Yanggang-Do
108th Mech. Corps	4–6 Mechanized Infantry Divs 1 Tank BDE*** 1 Light Infantry BDE***	25000-35000	Hamgyongnam-Do
425th Mech. Corps	1 MRL BDE 1 Artillery BDE		P'yonganbuk-Do
806th Mech. Corps	1 AAA Regiment 1 ATGM Battalion 1 Reconnaissance Battalion		Hamgyongnam-Do
815th Mech. Corps	1 Technical Engineer Battalion 1 Electronic Warfare/SIGINT Battalion 1 Communication Regiment 1 Nuclear-Chemical Defense Battalion 1 Transportation Battalion 1 Maintenance Battalion 1–2 Hospitals		Hwanghaenam-Do



<b>Order of Battle</b>	<b>Subordinate</b>	<b>Manpower</b>	<b>Location</b>
820th Tank Corps	1–2 Mechanized Infantry Divs 5 Tank BDEs 1 MRL BDE 1 Artillery BDE 1 AAA Regiment 1 Reconnaissance Battalion 1 Engineer/River-Crossing Regiment 1 Technical Engineer Battalion 1 Communication Regiment 1 Nuclear-Chemical Defense Battalion 1 Transportation Battalion 1 Maintenance Battalion 1 Hospital	22000-33000	Hwanghaenam-Do
620th Artillery Corps	5–9 MRL BDEs 5–9 Artillery BDEs 1 AAA Regiment	U/I	Hwanghaebuk-Do
Kangdong Artillery Corps	1 Artillery Instrument Reconnaissance Battalion 1 Communication Regiment 1 Engineer Battalion 1 Nuclear-Chemical Defense Battalion 1 Transportation Battalion 1 Maintenance Battalion		P'yongyang

\* VII Corps has 1 light infantry BDE

\*\* X and XI Corps do not have tank BDEs

\*\*\* Some of the Mech. Corps do not have tank BDEs or light infantry BDEs

According to Table 22, each province has one infantry corps, except Kangwon-Do, P'yongannam-Do, and Hamgyongnam-Do, which have two infantry corps. Although these corps' mission is invading ROK, these corps are familiar with the territorial characteristics of their province and remain close with the native people. Therefore, one

useful approach to integrating KPA is to transform these infantry corps and the P'yongyang Defense Command into TDUs. For example, the I Infantry Corps will be converted to the Gangwon-do TDD after downsizing<sup>11</sup>.

However, Kangwon-Do, P'yongannam-Do and Hamgyongnam-Do have two infantry corps each, which means one of the corps in each province cannot be converted into TDUs. Because KFA aims at mechanized forces based on high mobility and firepower, these units are not suitable to HICU either. So, the V, VII and U/I Corps will be demobilized and selected personnel in these corps will be moved to other KFA units..

Unlike ROK. mechanized units, the mechanized corps in KPA are better equipped with trucks and APCs, which provide rapid “protected” movement compared to regular infantry corps (Joseph, 2001, p. 61). By reducing their size and replacing trucks with IFVs, these mechanized corps will become mechanized Divs, which corresponds with KFA's strategic goal of employing HICUs. The 820th Tank Corps, which is the only tank corps in KPA and is equipped with high proportion of modern T-62 tanks (compared to T-54/55 and T-59 which are in the infantry corps and the two artillery corps) also will be used as a HICU after downsizing its personnel and equipment.

KPA is well known for its formidable special operations forces of 25 BDEs and 28 battalions (Bermudez, 2001, pp. 78). During peacetime, light infantry BDEs are attached to army corps and carry specific missions. During wartime, these infantry BDEs revert to the Light Infantry Training Guidance Bureau and to execute special operations (Bermudez, 2001, pp. 78). Most of the personnel who serve in these forces are selected from among those who have served four to seven years in combat units and are politically reliable, have zeal for the Communist Party, and get good evaluations from their senior officers. These special operations units are recognized as elite units within KPA (Bermudez, 1998, pp. 215–216). Because of their current privileged positions, indoctrination to communism, and their pride in being members of the best units in

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<sup>11</sup> Due to possibility of armed protest by former DPRK soldiers, KPA units in the North Korean region could be mixed with former ROK soldiers. However, although this approach might be helpful to control former DPRK soldiers, the salary difference right after reunification may makes former DPRK officers feel that they are treated unequally. Because of this limitation, this study does not address the mix of ROKA and KFA soldiers within KFA units.

DPRK, they would not easily give up their positions and social status compared to other personnel by being integrated into KFA. Therefore, ROKA needs to consider unit and individual characteristics when deciding which of the special operations forces personnel should be integrated into KFA to avoid conflicts within the unified Army.

The light infantry BDEs and battalions that are under the army corps can be transformed to anti-terror units under TDUs and the rest can be used as Special Weapons and Tactics (SWAT) teams under the police. The amphibious sniper BDE can be converted to duty like the U.S. Navy SEALs or Underwater Demolition Teams (UDTs), which has the closest mission profile. Sniper BDEs under the Reconnaissance Bureau and the other special operations forces, airborne BDEs, airborne sniper BDEs, and light infantry BDEs under the Light Infantry Training Guide Bureau can be integrated with ROK special operations forces and utilized as KFA special operations forces or dispatching units. By inducing voluntary retirements and cutting back recruiting, it is anticipated that downsizing KPA special operations forces can be done without strong resistance.

Table 23. KPA Order of Battle of Special Operation Forces (From Bermudez, 1998)

<b>Organization</b>	<b>Type</b>	<b>Brigades</b>	<b>Battalions</b>	<b>Manpower</b>	<b>Total</b>
Army Corps	Light Infantry Battalions		23	500	11,500
Army Corps	Light Infantry BDEs	11		3,500	38,500
Light Infantry Training Guidance Bureau	Airborne BDEs	3		3,500	10,500
	Airborne Sniper BDEs	3		3,500	10,500
	Light Infantry BDEs	3		3,500	10,500
Korean People's Navy	Amphibious Sniper BDEs	2		3,500	7,000
Reconnaissance Bureau	Reconnaissance Battalions		5	500	2,500
	Sniper BDEs	3		3,500	10,500
<b>Total</b>		25	28		101,500

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## **VI. CONCLUSION**

### **A. SUMMARY**

Reunification can be an opportunity for Korea to become a major power. However, without preparation, reunification also might cause enormous economic loss and social chaos. For example, Germany's total unification cost soared to US\$50B in late 1991; some experts estimate the cost of Korean reunification will be at least US\$2,000B in total due to DPRK's inferior situation compared to East Germany. To minimize problems caused by reunification, ROKA has to prepare to efficiently and selectively integrate KPA personnel into a KFA which has enough combat capability to deal with external threats—primarily the PLA. PRC, which spent US\$61B on its “official” defense budget in 2008, has 2.2 million personnel and 48 Divs. Considering PRC's other neighbors—such as Russia, India, and Taiwan—the estimated PLA ground forces deployable to the Korean Peninsula is assessed as three Group Armies (GAs) in the Shenyang Military Region (MR), three GAs in the Jinan MR, one GA at Beijing, and one Div at Chengdu. In addition, PLAAF would likely deploy 23 air regiments and two reconnaissance air regiments in support of a land invasion of the Korean Peninsula.

Based on the TASCFORM scoring system's AWSP9 combat potential metric, PLA forces applicable to a Korean scenario score 22,500 and PLAAF score 6,900, which totals 29,400. (The ROKA AWSP99 TASC score is 58,400 and ROKAF is 5,500, which totals 64,000.) Accordingly, this study estimates that three KFA heavy corps provide sufficient combat capability to ensure a robust defense against a PLA invasion. Most of the rest of the KFA troops provide for homeland security (or territorial defense) missions—to include construction, counterinsurgency, and civil order capabilities—in homeland security units. Finally, the KFA will likely also need a force for deployment outside the peninsula (primarily in support of multilateral peacekeeping missions).

Before considering methods of integrating KPA personnel into the KFA, this study analyzes Germany's military unification, based on the assumption that Korean reunification will be occur through peaceful agreement or DPRK collapse. In Germany,

the military unification process was led by the Bundeswehr, with its Eastern Command of 10,800 selected after examinations among the 60,000-strong East German Army (NVA) candidates who wanted to stay in the military. Then Germany reduced its military force to 370,000, achieved by shortening conscription terms and increasing the ratio of professional soldiers. Although Germany's military unification is a good reference point, ROKA needs to consider that KPA is bigger than ROKA (unlike Germany's case), and that significant elements of KPA would not support reunification.

Therefore, ROKA should be careful in integrating KPA personnel and should communicate a reasonable plan for KFA to address the concerns of KPA professional soldiers. To support the objectives of the MND, KFA will consist of HICUs, HDUs, and Expeditionary Units. The HICUs consists of six mechanized infantry Divs, three armored Divs, and three artillery BDEs, which have a larger combat potential than the PLA planning threat (measured in TASC scores). The HDUs consist of 20 Homeland Defense Infantry Divs, including the Capital Defense Command. The Expeditionary Unit consists of one expeditionary brigade. Thus, the total personnel strength of KFA will be about 350,000.

Population ratios indicate that about two-thirds of KFA will come from ROKA, and one-third from KPA. Therefore, ROKA needs to prepare for downsizing by increasing the proportion of professional soldiers and reducing conscription periods. KPA has to reduce its size down to one-tenth but the demobilization of the KPA should be carefully addressed because of potentially adverse effects on KPA's professional soldiers. So KFA has to provide a variety of measures to address economic and social stability.

Some KPA combat units will be reorganized as HDUs in the northern part of Korea after downsizing. The 820th Tank Corps could be used as part of the HICU, and special forces could be used as KFA special forces or as paramilitary units in support of the police.

## **B. CONCLUSION**

This study shows that the HICUs have about half the combat potential of the current ROKA (Figure 3). Due to KFA's emphasis on heavy forces, the expected number

of HICU divisions is less than half the number of ROKA Divs. The remainder of KFA is for other missions—homeland security and expeditionary forces—so in this particular analysis, it is estimated that KFA will have, in total, about two-thirds the combat capabilities of the current ROKA.

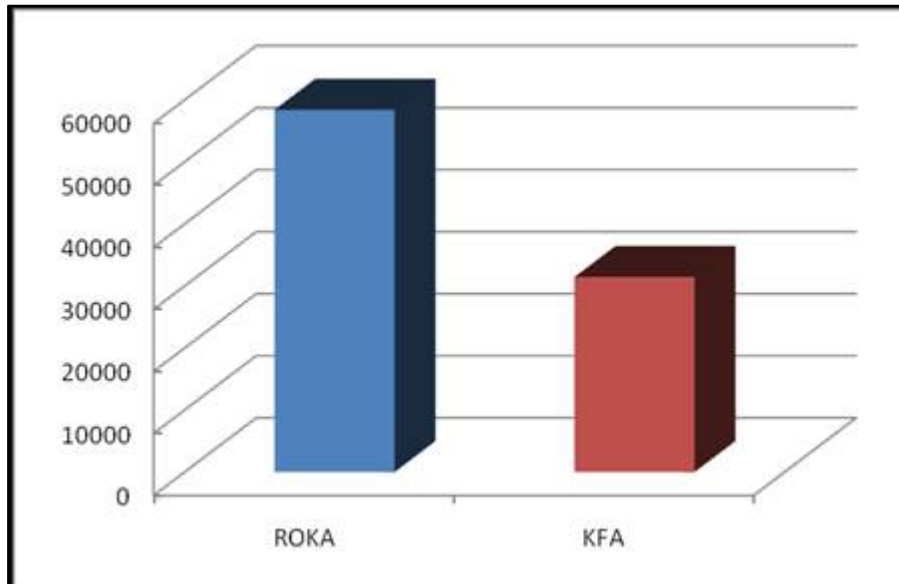


Figure 3. Comparison of TASC Scores Between ROKA and KFA HICUs

It appears that KFA has more support structure than does ROKA (Table 24). Global Security reports that ROKA is moving toward heavier forces—with fewer divisions and more support structure per combat unit<sup>12</sup> Therefore, the tooth-to-tail structure of KFA in this study is reasonable (albeit not precise).

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<sup>12</sup> This result comes from calculation that divide total manpower by the number of BDEs, Regiments and groups.



Table 24. Comparison of the Division Makeup between ROKA and KFA

	<b>Divisions (HICUs)</b>	<b>Homeland Defense Infantry Division</b>	<b>Brigades, Regiments, Groups*</b>	<b>Total Manpower</b>
ROKA	21	13	76	560,000
KFA	9	20	37**	350,000

\* Includes Special Forces and Expeditionary Brigade

\*\* This total includes other brigades besides artillery organized as corps assets (such as signals and security brigades)<sup>13</sup>.

The second part of this study discussed how to integrate KPA personnel during the reunification process. Because the expected size of KFA is approximately one-quarter of the current ROKA and KPA total, significant downsizing is indicated (Figure 4). Successful downsizing of KPA is likely to be one of the primary elements of successful reunification.

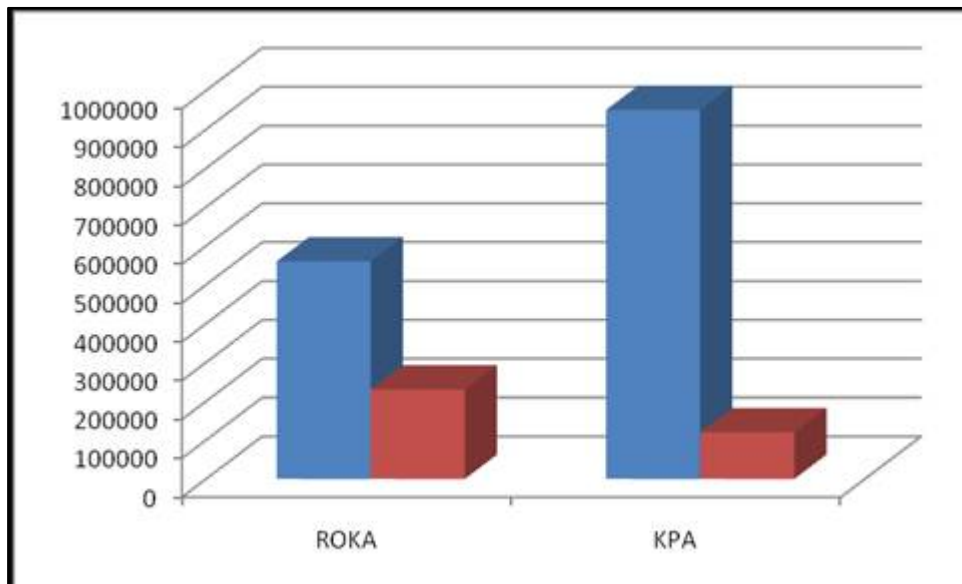


Figure 4. Comparison of ROKA and KPA Strength Before and After Reunification

<sup>13</sup> BDEs, regiments, groups are contained in HICUs and Homeland Infantry Divisions with the exception of one expeditionary brigade.

### **C. POLICY RECOMMENDATIONS**

To prevent PRC intervention in the case of DPRK collapse, the ROK-U.S. alliance will likely become more important. Therefore, ROK needs to reach a common understanding with the U.S. about economic and military support for reunification when the time comes.

Also, to partially offset the cost of reunification and avoid unnecessarily threatening neighboring countries, Unified Korea should be careful not to overspend for defense. Therefore, KFA needs to be properly sized. Its size should be large enough to deter potential threats, while avoiding too large a defense burden for Korea and becoming a destabilizing threat to its neighbors.

### **D. LIMITATIONS**

This study has some limitations. Data available was insufficient to support a detailed analysis of PLA and PLAAF; our assessment of the PRC threat is only a reasonable first-order estimate. Within the TASCFORM methodology employed, the “bridging factors” used to relate air and ground force TASC scores are imprecise at best. Bridging factors are embodied in AWSP, but it is recommended that these factors be re-examined. In addition, this study does not address combat support and combat service support factors in detail. Thus, the actual size of KFA will likely vary somewhat from our estimates. Moreover, this study does not address in detail the politics of integrating ROKA and KPA personnel into one Korean Army. It identifies some promising integration strategies (based partly on the German experience) but does not provide a detailed plan.

### **E. SUGGESTIONS FOR FURTHER STUDY**

In analyzing KFA, further studies could utilize Air Force TASC scores more precisely to improve estimates of total capability for air-land battles. Additionally, calculating naval combat potential would be useful in identifying the magnitude of the amphibious threat to Korea from PRC or other countries in the region. Also, analyzing

capabilities of combat support and combat service support of PLA could be helpful to achieving more precise net assessments of KFA versus the PLA threat. Finally, in the near future, network-centric warfare (NCW) will become an essential factor of war, so studies about the implications of NCW to KFA are needed.

For integrating KPA personnel into KFA, more detailed analyses of political integration and physical reconstruction of the DPRK region are also needed. Additionally, cost-benefit analysis of accepting KPA professional soldiers and using KPA equipment would also be useful. A broad understanding of the possible paths to reunification could give ROKA greater flexibility and adaptability in preparing for and managing reunification.

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